

form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. Entry of the amendments is thus respectfully requested.

Claims 1-4 are rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,663,631 to Kajiura et al. (Kajiura) in view of U.S. Patent No. 6,111,390 to Inaba et al. (Inaba). The rejection is respectfully traversed.

Applicants assert that neither Kajiura or Inaba, whether considered alone or in combination, disclose or suggest each and every feature recited in the rejected claims. For example, the combination of the applied references does not disclose or suggest a voltage regulator of a vehicle AC generator including a rotor having a field coil and a plurality of magnetic poles and a stator having a stator core and an armature coil, said voltage regulator comprising...a field voltage detecting circuit for detecting field voltage induced in the field coil when the field coil is not supplied with field current, as recited in claim 1.

Although the Office Action contends that the control circuit 11 of Kajiura corresponds to the field voltage detecting circuit recited in claim 1. Applicants disagree with the interpretation of Kajiura. The control circuit 11 of Kajiura is a well known circuit and includes a terminal s for detecting a battery voltage, a terminal ig connected to the battery through an ignition switch 18 and a terminal d connected to the base of the transistor 12 of the field exciting circuit as shown in Fig. 1 (col. 6, lines 8-13). Thus, the control circuit 11 of Kajiura does not detect field voltage induced in the field coil when the field coil is not supplied with field current. Rather, the control circuit 11 controls the transistor 12 according to the terminal voltage of the battery 15 (col. 6, lines 15-22, Fig. 1 of Kajiura). Thus, the transistor 12 of Kajiura more closely corresponds to the switching transistor 7 shown in Fig. 1 of the application. Therefore, the control circuit 11 of Kajiura is not detecting field voltage

induced in the field coil and the field coil is not supplied with field current but rather is acting as a gate to supply field current from the battery 15 to the field coil 2 disposed in the rotor 3 (see Fig. 1 of Kajiura).

Furthermore, the Office Action admits that Kajiura fails to disclose a switching circuit, connected to the field coil for supplying field current to the field coil in a controlled manner. To overcome the admitted deficiency the Office Action combines Inaba and alleges that it would have been obvious to one skilled in the art at the time the invention was made to use the switching circuit disclosed by Inaba on the voltage regulator disclosed by Kajiura. Thus, the Office Action only combines Inaba to teach the alleged switching circuit.

Applicants assert that the combination of Inaba is moot as Kajiura discloses a switching circuit as described above. Furthermore, the change-over switch circuit 30 of Inaba permits current to flow from one end 5a of the coil 5 to the other end 5b of the coil 5 (col. 12, line 59 - col. 13, line 4 of Inaba). Thus, the change-over switch circuit 30 does not correspond to the switching circuit recited in the rejected claims. Furthermore, Inaba does not overcome the deficiencies of Kajiura as discussed above.

The Office Action further alleges that the phase control circuit 10 of Kajiura corresponds to the switch control circuit recited in the rejected claims. Applicants also disagree with the interpretation of the phase control circuit. The phase control circuit 10 of Kajiura generates digital signals, shown in Fig. 6a, which lag respectively in electric angle of 60 degrees behind the sensor output signals u, v and w output from their respective magnetic sensors 6, 7 and 8 (col. 6, lines 35-59 of Kajiura). Accordingly, the phase control circuit 10 of Kajiura does not correspond to the switch control circuit recited in the rejected claims.

Accordingly, the combination of Kajiura and Inaba do not disclose or suggest each and every feature recited in rejected claims 1-4. Thus, Applicants respectfully request the rejection of claims 1-4 under 35 U.S.C. §103(a) be withdrawn.

Claims 5-19 are rejected under 35 U.S.C. §103(a) as unpatentable over Kajiura in view of Inaba and further in view of U.S. Patent No. 5,710,471 to Syverson et al. (Syverson). As claims 7-12, 14 and 16-19 are canceled the rejection of those claims is moot. Applicants respectfully traverse the rejection of claims 5, 6, 13 and 15.

Applicants assert that claims 5, 6, 13 and 15 are allowable for at least the reasons discussed above regarding Kajiura and Inaba. Furthermore, Syverson does not provide, nor does the Office Action allege that Syverson provides, the additional features recited in the rejected claims.

The Office Action admits that neither Kajiura or Inaba disclose a voltage regulator of a vehicle AC generator including a rotor having a field coil and a plurality of magnetic poles and a stator having a stator core and an armature coil, said voltage regulator comprising...a power circuit for supplying electric power to the control circuit, a power drive circuit for controlling supply of the electric power to the control circuit and first means for detecting the rotation speed of the rotor according to the field voltage, wherein the power drive circuit supplies electric power from the power circuit to the control circuit if the rotation speed becomes as high as a predetermined speed.

To overcome the admitted deficiency, the Office Action combines Syverson and alleges that it would have been obvious to one skilled in the art at the time the invention was made to use the hybrid alternator of Syverson on the voltage regulator disclosed by Kajiura.

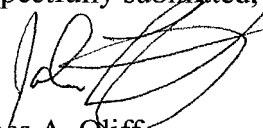
The Office Action alleges that the internal power supply 472 of Syverson which produces V_{cc} power corresponds to the power circuit for supplying electric power to the control circuit as recited in claims 5 and 6. However the internal power supply 472 supplies power for operating the voltage regulator circuitry to provide control voltage power supply for the regulator (col. 16, lines 45-51). Additionally, the Office Action alleges that the transistors 594 and 596 correspond to the power drive circuit for controlling supply of electric

power to the control circuit as recited in claim 5. However, there is no suggestion or disclosure of such a use for the PNP transistors 594, 596. Rather, the only disclosed use of the transistors is to provide "active gate pull down" as part of the suppression of voltage transience in low dump situations where a heavy battery load is suddenly switched off or when the battery itself is disconnected while driving heavy current. Accordingly, Applicants respectfully request the rejection of claims 5, 6, 13 and 15 under 35 U.S.C. §103(a) be withdrawn.

In view of the foregoing, reconsideration of the application is requested. It is submitted that the claims as presented herein patentably distinguish over the applied references and fully meet the requirements of 35 U.S.C. §112. Accordingly, allowance of claims 1-6, 13 and 15 is respectfully solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,


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